

## **SR 22 YAKIMA RIVER CED RETROFIT**

### **MARCH 11, 2005**

#### **INTRODUCTION**

The Yakima River Bridge retrofit site is along State Route (SR) 22 near Toppenish, Washington. SR 22 connects SR 97 near Toppenish to Interstate 82 near Zillah. SR 22 is a main transit route for local and commercial traffic into and out of the Yakama Indian Nation.

#### **THE CED PROBLEM**

The three bridges that exist within the Yakima River floodplain were built using a previously approved design using shallow spread footings that support the bridge structures. This design is susceptible to scour and undercutting by the river. Bridge scour and bank erosion problems at this location have necessitated repetitive channel stabilization measures that have resulted in impacts to fish habitat.

In addition to the scour problem, chronic bank erosion upstream of the bridge threatens to not only flank the bridge, but may force an avulsion of the river to the south, potentially creating an even more serious problem.

Historical aerial photography shows that the Yakima River mainstem channel has occupied an extensive cross-valley area, and aerial photos display numerous current and former channel locations. At least some of these former channels convey flow during flood stage and may have the potential to capture the mainstem flow in the future. If the mainstem channel avulses into one or more of these former channels, flow conveyance through current bridge openings may exceed current safe capacities resulting in extensive flooding or abutment failure.

#### **FISH UTILIZATION & HABITAT AVAILABILITY**

The Yakima River system supports coho, spring Chinook, fall Chinook, summer steelhead, and bull trout/dolly varden (presumed present), as well as several non-salmonid species. Both steelhead and bull trout in the Yakima River are listed as threatened under the federal Endangered Species Act.

#### **ONGOING WORK**

GeoEngineers is currently participating in an Avulsion Risk Analysis with WSDOT to assess the likelihood of channel avulsion and the implications of such an occurrence. The Integrated Streambank Protection Guidelines concepts will be used to address the overall project objectives. It is anticipated that the outcome of the project will result in meeting the necessary requirements to protect SR 22 and provide environmental enhancements to this reach of the river.



Figure 1. Maintenance workers fill in a scour hole to protect a bridge pier at the SR 22 Yakima River Bridge.